



Differences in personality traits between male-to-female and female-to-male gender identity disorder subjects

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ARTICLE INFO

Article history:

Received 9 December 2013

Received in revised form

17 July 2014

Accepted 27 July 2014

Available online 1 August 2014

Keywords:

GID

MtF

FtM

Personality traits

Treatment

ABSTRACT

The present study aimed to investigate differences in personality traits among male-to-female (MtF), female-to-male (FtM) gender identity disorder (GID) subjects and non-transsexual male (M) and female (F) controls. Subjects were 72 MtF and 187 FtM GID subjects without psychiatric comorbidities together with 184 male and 159 female non-transsexual controls. Personality traits were assessed using a short version of the Temperament and Character Inventory (TCI-125). Group comparisons were made by two-way ANOVA. Statistical significances were observed as follows: 1) lower novelty seeking in FtM than in M or MtF, 2) higher reward dependence in FtM than in M, 3) higher cooperativeness in FtM than in M or MtF, 4) the highest self-transcendence in MtF among all the groups. The highest self-transcendence in MtF subjects may reflect their vulnerable identity and constrained adaptation to society as the minority. Nevertheless, higher reward dependence and cooperativeness in FtM subjects can be related to more determined motivation for the treatments of GID and might promise better social functioning and adjustment than MtF subjects.

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1. Introduction

The GID patients were diagnosed according to the criteria of ICD-10 (World Health Organization, 1993) and DSM-IV-TR (American Psychiatric Association, 2000). Diagnosis was made by more than 2 well-trained psychiatrists, in which transvestism was excluded, and only transsexualism was considered. Persons with gender identity disorder (GID) usually have kept uncomfortable feeling to their biological sex since their early childhood. The friction between mind and body, i.e., unwanted secondary-developed biological sex characteristic vs. unmet desire for sex reassignment, reaches its peak around their adolescence. Accordingly, GID subjects are sometimes accompanied by psychiatric comorbidities (Hepp et al., 2005; de Vries et al., 2011a; Terada et al., 2012a) and behavioral/adjustment problems (Terada et al., 2011, 2012b). According to previous reports, the prevalence of psychiatric comorbidity ranged from 17.8% to 39% (Hepp et al., 2005; de Vries et al., 2011a; Terada et al., 2012a), whereas school refusal as an adjustment problem (29.2%) (Terada et al., 2011) and self-mutilation as a behavioral problem (31.8%) (Terada et al., 2012b) were also found in patients with GID.

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Meanwhile, differences in prevalence and severity of psychiatric comorbidity in male-to-female (MtF) and female-to-male (FtM) GID patients have been also pointed out (Hoshiai et al., 2010; de Vries et al., 2011a). The prevalence of the overall psychiatric comorbidities was higher among MtF patients (19.1%) than that among FtM patients (12.0%) (Hoshiai et al., 2010). Likewise, MtF patients showed higher incidences of mood disorders (20.8% vs. 3.8%) and social anxiety disorder (15.1% vs. 3.8%) compared with FtM patients (de Vries et al., 2011a). Furthermore, MtF patients more often suffered from two or more comorbid diagnoses (22.6%) than FtM patients (7.7%) (de Vries et al., 2011a). Multicenter studies on sociodemographic features revealed that FtM displayed significantly better social functioning (Fisher et al., 2013), while MtF conceptualized themselves as more vulnerable and deficient (Simon et al., 2011).

In our clinical practice, FtM patients generally have unbudging gender orientation and consistent desire for sex reassignment whereas gender orientation and treatment-seeking behavior in MtF patients tend to be more easily influenced by their circumstances and situations than those in FtM patients. In fact, the proportion of FtM patients who had marriage as a female is very low, and very few had children, while MtF-type GID patients seem to be less homogeneous and have more confused gender orientation (Okabe et al., 2008).

It has been recently suggested that some differences in personality traits exist between MtF and FtM subjects, e.g., higher harm

avoidance, reward dependence and self-transcendence in MtF than those in FtM (Gómez-Gil et al., 2013) assessed by the Temperament and Character Inventory (TCI), which was developed by Cloninger et al. (1994). However, studies focusing on personality traits in GID patients are still few. Considering transcultural effects, personality traits in GID subjects need to be re-examined in different ethnic populations.

TCI (Cloninger et al., 1994) consists of novelty seeking, harm avoidance, reward dependence and persistence, which are associated with activation, inhibition, maintenance and preservation of behavior, respectively. Character dimensions are classified into self-directedness, cooperativeness and self-transcendence, which reflect the concept of self as an autonomous individual, a harmonization with humanity/society and an integral part of the universe, respectively. TCI has been widely used in clinical researches as a probe for premorbid personality factors for depressive disorders (Cloninger et al., 2006; Farmer and Seeley, 2009).

Therefore, the present study aimed to comprehensively investigate differences in personality traits using TCI in Japanese MtF and FtM patients with GID, including comparison with non-transsexual control subjects.

2. Methods

2.1. Subjects

The data were collected from voluntary participants (both transsexuals and controls) in the present study. Control subjects consisted of university students, teaching staffs, hospital workers and their families. Transsexual subjects were recruited from our clinic and the affiliate institutions by providing information on voluntary participation in our study at their medical examination. The overall subjects finally consisted of 72 MtF and 187 FtM transsexual patients without psychiatric comorbidities together with 184 male and 159 female non-transsexual controls. Diagnosis of GID was made according to the DSM-IV criteria. Social status of the subjects was simply classified into three categories, i.e., student, employed or unemployed (Table 1).

2.2. Assessment

Personality traits with seven dimensions were assessed by using the simplified version of 125-item TCI (TCI-125) which was originally 240-item questionnaire (Cloninger et al., 1994). In the present study, Japanese version of TCI-125 with four-scale steps was used, which was already validated by Kijima et al. (1996).

All the results were recorded as anonymous and grouped data after encoded, adhering to privacy policy to protect personal information. Subjects were informed about the voluntary nature of participation and assured of anonymity in handling of data. Each participant could receive feedback of his or her analyzed personal data unless he or she refused to know his or her data. This study had been approved by the Ethics Committee of the University of the Ryukyus, and written informed consent to participate in this study was obtained from each subject.

2.3. Statistics

Age was compared among the four groups (control males, control females, MtF and FtM) by one-way ANOVA followed by Tukey test as a post-hoc analysis (Table 1). Kruskal–Wallis test was performed to compare social status among the four groups

(Table 1). Group comparisons of temperament and character profiles among the four groups were made by two-way ANOVA (transsexuality/gender awareness) as shown in Table 2. For each dimension of personality traits in GID subjects, two-way ANOVA was performed to investigate interactions between GID subtypes and past hormonal/surgical treatments (Table 3).

A two-tailed *P* value less than 0.05 was regarded as statistically significant. SPSS 19.0 for Windows (SPSS Japan, Tokyo, Japan) was used for the statistical analyses.

3. Results

Table 1 shows age and social status of transsexual and control subjects. The mean age \pm S.D. (range) was 35.2 ± 11.7 (14–60) years for the MtF group, 25.1 ± 5.7 (14–45) years for the FtM group, 30.4 ± 7.5 (22–62) years for male controls and 30.0 ± 8.9 (18–60) years for female controls. Mean age of the FtM group was the lowest while that of the MtF group was the highest among all the groups ($P < 0.05$). The proportion of students was higher in control subjects (both males and females) than the transsexual subjects (MtF and FtM) while transsexuals had more employed workers or unemployed subjects than in controls ($P < 0.05$). Among MtF subjects, 46 (63.9%) already received hormonal/surgical treatments within 1 year after formally diagnosed as GID while 22 did not and four had unknown treatment history. Likewise, 127 FtM subjects (67.9%) had histories of hormonal/surgical treatments while the remaining 60 did not. No difference was found in the rate of past hormonal/surgical treatments between the two GID subtypes.

Table 2 summarizes comparisons of seven dimensions of personality among the four groups (control males, control females, MtF and FtM). Regarding temperament dimensions, FtM showed the lower score for novelty seeking than male controls and MtF whereas FtM showed the higher score for reward dependence than male control subjects ($P < 0.05$). As for character dimensions, FtM showed the higher score for cooperativeness than in male controls and MtF. The mean score of self-transcendence was the highest in MtF, and that in FtM was lower in male controls ($P < 0.05$).

Among seven dimensions of personality traits, only persistence caused a significant interaction between GID subtypes and the history of hormonal/surgical treatments (Table 3). Persistence was lower in untreated MtF patients than treated MtF patients or untreated FtM ($P < 0.05$).

4. Discussion

It has been suggested that cluster B (22%), cluster C (12%) and cluster A (2%) personality disorders were observed as Axis II disorders in GID patients requesting sex reassignment surgery (Madeddu et al., 2009). However, other than such robust personality deviation, vulnerability in predisposed temperament and acquired character may exist as characteristic of personality traits in transsexual subjects. GID subjects tend to be more influenced by

Table 1

Age and status in male-to-female and female-to-male transsexual subjects and non-transsexual controls.

	Controls		Transsexuals		Differences ($P < 0.05$)
	M ($n = 184$)	F ($n = 159$)	MtF ($n = 72$)	FtM ($n = 187$)	
Age (years)	30.4 ± 7.5	30.0 ± 8.9	35.2 ± 11.7	25.1 ± 5.7	MtF > M, F > FtM
Student (%)	95 (52)	73 (46)	8 (11)	34 (18)	Controls > transsexuals
Employed (%)	89 (48)	86 (54)	52 (72)	143 (76)	Transsexuals > controls
Unemployed (%)	0 (0)	0 (0)	12 (17)	10 (5)	Transsexuals > controls

M: male controls, F: female controls, MtF: male-to-female transsexuals, FtM: female-to-male transsexuals.

Table 2

Scores of seven dimensions of Temperament and Character Inventory in male-to-female and female-to-male transsexual subjects and non-transsexual controls.

	Controls		Transsexuals		Differences ($P < 0.05$)
	M ($n = 184$)	F ($n = 159$)	MtF ($n = 72$)	FtM ($n = 187$)	
Novelty seeking (20–80)	52.1 \pm 7.5	50.9 \pm 6.8	51.3 \pm 7.7	49.0 \pm 7.9	FtM < M, MtF
Harm avoidance (20–80)	52.7 \pm 9.0	53.3 \pm 9.1	54.0 \pm 9.5	52.5 \pm 9.0	
Reward dependence (15–60)	42.6 \pm 5.1	43.5 \pm 4.8	42.8 \pm 5.3	44.0 \pm 4.7	FtM > M
Persistence (5–20)	13.2 \pm 2.5	13.3 \pm 2.5	13.9 \pm 2.9	14.6 \pm 2.2	
Self-directedness (25–100)	69.4 \pm 10.6	69.2 \pm 9.9	65.0 \pm 13.0	66.0 \pm 10.5	
Cooperativeness (25–100)	75.1 \pm 7.8	76.1 \pm 8.2	76.6 \pm 10.3	80.9 \pm 7.3	FtM > M, MtF
Self-transcendence (15–60)	28.2 \pm 7.1	28.9 \pm 6.7	36.7 \pm 9.8	31.1 \pm 6.8	MtF > M, F, FtM FtM > M

M: male controls, F: female controls, MtF: male-to-female transsexuals, FtM: female-to-male transsexuals.

Table 3

Interacting effects of transsexual subtypes and past hormonal and/or surgical treatments on the scores of seven dimensions of Temperament and Character Inventory.

	MtF		FtM		Differences ($P < 0.05$)
	Treated ($n = 46$)	Untreated ($n = 22$)	Treated ($n = 127$)	Untreated ($n = 60$)	
Novelty seeking (20–80)	51.0 \pm 7.1	52.2 \pm 9.1	49.1 \pm 7.8	49.0 \pm 8.0	
Harm avoidance (20–80)	53.5 \pm 9.1	55.1 \pm 10.3	52.4 \pm 9.1	52.5 \pm 8.8	
Reward dependence (15–60)	42.5 \pm 5.3	43.3 \pm 5.7	44.5 \pm 5.0	43.0 \pm 3.9	
Persistence (5–20)	14.6 \pm 2.2	12.8 \pm 3.1	14.6 \pm 2.2	14.6 \pm 2.1	Treated > untreated (MtF) FtM > MtF (untreated)
Self-directedness (25–100)	66.1 \pm 12.7	62.5 \pm 14.1	66.9 \pm 10.7	64.1 \pm 10.0	
Cooperativeness (25–100)	77.3 \pm 11.9	74.9 \pm 6.7	80.8 \pm 7.4	81.2 \pm 7.1	
Self-transcendence (15–60)	37.0 \pm 9.4	35.5 \pm 13.4	31.0 \pm 7.0	31.3 \pm 6.2	

MtF: male-to-female transsexuals, FtM: female-to-male transsexuals.

surrounding others and situations probably due to more fragile identity and less predictable future perspective than ordinary people. Accordingly, it appears necessary to comprehensively evaluate personality profiles of GID subjects. Therefore, TCI was requisite as a probe to detect more neutral personality traits of GID patients and to reveal the differences between MtF and FtM subjects.

In our naturalistic sample collection, the FtM group was the youngest (25.1 years) while the MtF group was the oldest (35.2 years). This difference in the age between MtF and FtM patients was consistent with a previous report (Matsumoto et al., 2009). It has been generally recognized that younger population tends to have higher novelty seeking, harm avoidance and self-transcendence in contrast to lower persistence and self-directedness (Chen et al., 2013). Therefore, these age-effects must be taken into account to assess higher self-transcendence in FtM. However, other remaining profiles in the youngest FtM group (low novelty seeking and high reward dependence and cooperativeness) and the oldest MtF group (high novelty-seeking and self-transcendence) appear independent of age-effects (Table 2). Accordingly, it is modestly suggested that personality profiles in the GID subjects are mostly attributable to transsexuality.

Regarding temperament dimensions of TCI, FtM patients showed lower novelty seeking and higher reward dependence than male controls (Table 2). These profiles accord well with our clinical impression of FtM patients, who are generally conservative but sympathetic to keep interpersonal relationship. It has been suggested that FtM patients are more reliant on positive reappraisal strategy in stressful situations than MtF patients (Matsumoto et al., 2009), which may lead to increased tolerance to frustration followed by persistent motivation for realistic solution to fix their gender/sex problems. Furthermore, several previous studies reported that FtM subjects had much clearer sexual orientation (Okabe et al., 2008; de Vries et al., 2011b) and functioned significantly better than MtF subjects (de Vries et al., 2011b;

Fisher et al., 2013). Therefore, the risk of isolated maladjustment may be relatively lower in FtM subjects. However, it is rather surprising that opposite findings to our data like lower reward dependence in FtM than female controls and MtF have been found in Spanish population (Gómez-Gil et al., 2013). Although we do not have rational explanation for this discrepancy, some ethnic and cultural differences affecting personality traits might exist between the Spanish and Japanese.

As for character dimensions of TCI, cooperativeness was higher in the FtM group than male controls or MtF subjects (Table 2), which may be associated with better social adjustment and collaborative relationship with others. In contrast, self-transcendence was the highest in MtF-type GID patients (Table 2), which may partly reflect tendency to escape from reality rather than high spirituality. This finding (the highest self-transcendence in MtF) is perfectly consistent with a recent study in Spanish population (Gómez-Gil et al., 2013), which may be considered as the universal phenomenon irrespective of ethnicity and culture. Also the differences in personality traits between MtF and FtM were apparent in cooperative and self-transcendence dimensions. These suggest that MtF is more vulnerable and has higher risk of isolation and maladjustment from psychosocial aspects. These may at least partly explain higher prevalence and greater severity in psychiatric comorbidities among MtF patients than those among FtM patients (Hoshiai et al., 2010; de Vries et al., 2011a).

Although MtF/FtM prevalence ratios have been worldwide assumed to range 3:1–4:1 (Moreno-Pérez and de Antonio, 2012), subjects consisted of predominant FtM (72.2%) and MtF as the minority (27.8%) in the present study. This is in line with the MtF/FtM distribution (34%: 66%) in a previous study conducted by Japanese researchers, explaining this FtM dominance due to their clear intention to undergo sexual rearrangement surgery (Matsumoto et al., 2009). From another point of view, MtF might be easily influenced by more conservative gender culture in Japan. Actually, 28.3% had married as males and 18.7% had sired children

among MtF patients in contrast to more determined sexual orientation of FtM as the male gender (Okabe et al., 2008). Therefore, differences in personality traits between MtF and FtM should be also focused on because these can affect behavioral tendency and motivation for hormonal/surgical treatments. In the present study, only persistence caused a significant interaction between GID subtypes and past history of hormonal/surgical treatments (Table 3). The lowest score of persistence in untreated MtF may demonstrate that lower persistence leads to lower motivation for hormonal/surgical treatments in MtF subjects.

The present study provides some information on how differently therapists respond to MtF and FtM subjects. In principle, we should pay full attention to vulnerable identity and acquired escapism derived from high self-transcendence in MtF subjects, who may be at higher risk of psychiatric comorbidity and need more intensive psychosocial support. In contrast, we should not hesitate to promote the process of sexual rearrangement therapy for FtM patients, considering their high reward dependence and cooperativeness in personality traits of FtM.

It should be noted that this study suffers from imbalance of the subjects among the four groups because naturalistic collection of GID samples resulted in predominance of FtM subjects over MtF subjects. Second, the possibility that voluntary participation itself may have resulted in some bias in the data cannot be entirely ruled out. This was described in the section for the limitation of study. Third, the average age in both GID groups differs from that in both gender control groups (older in the MtF group and younger in the FtM group) where age-associated effects on personality traits in GID subjects cannot be entirely ruled out. Fourth, other clinical backgrounds such as education levels and types of occupations were not matched among the four groups.

5. Conclusions

High reward dependence and cooperativeness in the FtM and high self-transcendence in the MtF were characteristic of personality traits in Japanese GID subjects. These may cause differences in interpersonal relationship and social functioning/adjustment between MtF and FtM transsexuals. The MtF subjects with low persistence tend to have poor motivation for hormonal/surgical treatments.

Acknowledgments

We are grateful to all the participants in our study who voluntarily collaborate with us and give us valuable information. We would also thank to Mr. David Webb for his helpful advice. The authors declare that there is no conflict of interest for this study.

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